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COPPER-CONTAINING C4 BALL-LIMITING METALLURGY STACK FOR ENHANCED RELIABILITY OF PACKAGED

STRUCTURES AND METHOD OF MAKING SAME

about 500 Å to about 4,000 Å, and wherein the metal third layer has a thickness in a range from about 1,000 Å to about 5,000 Å.

- (New) The BLM stack according to claim 1, wherein the metal third layer 32. includes a NiV composition over the metal second layer, wherein the NiV composition has a thickness in a range from about 1,000 Å to about 5,000 Å.
- (New) The BLM stack according to claim 1, wherein the metal third layer 33. includes a NiV composition over the metal second layer, wherein the NiV composition has a thickness in a range from about 1,000 Å/to about 5,000 Å, and wherein the metal second layer has a thickness in a range from about 1,000 Å to about 5,000 Å.
- (New) The BLM stack according to claim 1, wherein the metal third layer 34. includes a copper stud over the metal second layer, wherein the copper stud has a thickness in a range from about 5 micrometers to about 15 micrometers.
- 35. (New) The BLM stack according to claim 1, wherein the metal third layer includes a copper stud over the metal second layer, wherein the copper stud has a thickness in a range from about 5 micrometers to about 15 micrometers, and wherein the metal second layer has a thickness in a range from about 1,000 Å to about 5,000 Å.
- (New) The system according to claim 23, wherein the metal adhesion first layer 36. includes a Ti composition, wherein the Ti composition has a thickness in a range from about 500 Å to about 4,000 Å.
- (New) The system according to claim 23, wherein the metal second layer includes 37. a NiV composition, and wherein the NiV composition has a thickness in a range from about 500